

Complete

Docket # 84-040
Case # ACT/015/025

Co-op Mining Co.

UMC 784.23 Operation Plan: Maps and Plans

The applicant has not completely addressed this requirement. Cross-sections of disturbed and undisturbed ditches have not been submitted. Cross-sections of the Bear Canyon stream channel were not certified prior to the March 1984 DOC/TD document. The April 30th response omitted not only the certification but also the original cross-sections.

See Appendix 3-2

JUN 25 1984

Complete

UMC 784.14 Reclamation Plan: Hydrologic Balance

The applicant has not completely addressed this requirement. The applicant has not provided maps, plans and cross-sections to depict postmining drainage patterns. Clarification of a statement in the MRP regarding "horizontal drainage patterns," a postmining drainage map, cross-sections depicting postmining topography and drainage, specific measures for stabilizing reclaimed drainage channels and details on measures proposed for reclamation of the main stream channel where it is currently culverted were not submitted as required. The previous MRP had proposed a log check dam configuration for reclaiming the Bear Canyon stream channel. This proposal was removed by the April 30, 1984 response and the only inference to reclaiming the stream channel is the depiction of eight-inch riprap shown on Plate 3-2.

See Appendix 3-2 and Plate 3-2A
 3-G (Road Reclamation Plan)
 Scale House Approved Modification Letter-
 Approvals end of MRP

Appendix 3-2

RECLAMATION PLAN - DRAINAGE CHANNELS

RECLAMATION PLAN - DRAINAGE CHANNELS

The following information is a direct excerpt from April 25, 1984 MRP Submittal and Approved Scale House Modification, October 12, 1983:

Upon final reclamation, all disturbed areas will be recontoured to near natural configuration, drainage channels will be re-established.

"PHASE # 4 DRAINAGE CHANNEL STABILIZATION AND RECONSTRUCTION

In conjunction with the recontouring, all drainage areas will re-establish to approximate original configuration. In order to minimize the loss of soil, all drainages will be lined with hygronomy blankets for approximately 10 feet above and below the areas of disturbance. In addition, where conditions warrant, rock rip rap may also be utilized to add yet another parameter of stability." (excerpt Chapter 3, pg. 3-119)

Plate 3-2A illustrates the postmining alignment of the stream channels and those areas where additional rip-rap is anticipated.

The above procedures coupled with the use of soil tac in application has proven an excellent method of stabilization of disturbed areas until vegetation is re-established. Rate of application is discussed in detail Chapter 9, pages 9-16, April 26, 1984 MRP Submittal.

That portion of Bear Creek which is presently culverted is to be reclaimed as stated in the Approved Scale House Modification October 12, 1983. For convenience a copy of that approved plan is attached herein with the addition of the Engineering Certification as requested on May 11, 1984.

PHASE # 4 DRAINAGE CHANNEL STABILIZATION AND RECONSTRUCTION

In conjunction with the recontouring, all drainage areas will re-establish to approximate original configuration. In order to minimize the loss of soil, all drainages will be lined with hygronomy blankets for approximately 10 feet above and below the areas of disturbance. In addition, where conditions warrant, rock rip rap may also be utilized to add yet another parameter of stability.

MODIFICATION DEFICIENCIES

UMC 817.44 Hydrologic Balance: Stream Channel Diversions

The methodology which the Co-Op Mining Co. contemplates implementing upon final abandonment and reclamation of that portion of Bear Creek in the vicinity of the Scale house are as follows:

1. To use a large track mounted excavator in conjunction with a small backhoe and crawler tractor to remove the 60' culvert and to regrade the opposing banks on approximately a 3 to 1 slope to facilitate revegetation and to enhance the establishment of a riparian zone. (Note fig. 1 for the present stream configuration and projected after reclamation).
2. To construct small holding ponds along the channel utilizing native materials. The actual methodology is to incorporate 2 logs approximately 10 to 14" in diameter, trench into the bank back approximately 10' on both sides of the creek channel, secure the logs together in a stacked manner with 3/4" anchor bolts, buried for approximately 10 feet with approximately 36" of fill material decreasing to 0" as the stream channel is approached. An 18" wide by 5" deep notch cut along the top of the upper log in the center of the creek channel, to create a centralized spill-way. Once the logs are secured into the channel, rock rip-rap should be laid on the up stream side to a height equal to the height of the log retainer and continued up stream for a distance of 36" decreasing in height so as to be level with the original rip-rapped channel. Then by utilizing a backhoe, a pit approximately 3' in diameter should be dug at the fall line of the spillway and lined with large rock 2' +. The log-pond configuration should be repeated at approximately 50' intervals along the course of the creek channel to create a stepped configuration along the area of disturbance.

The intent of the holding ponds created by the log-rock dam is to fill with sediment and minimize the down stream migration

of this potentially detrimental source of silt and convert it into a potentially beneficial, enriched, growth media to facilitate the enlargement and establishment of riparian vegetation. Over a course of time the water holding capability of the ponded area will decrease as the ponds fill with sediment, however, the small ponds at the base of the spillway should remain relatively free from sediment and due to the small surface areas and depth, they will hold water over an extended period during dry seasons. A diagram is attached for your review. (See fig. 2).

The methodology is one which has been successfully implemented by myself on various areas to facilitate both water holding and enhancement of riparian zones and has been proven successful.

UMC 817.44 Paragraph 2

A 93-R and a 404 permit have been applied for. See appendix "A", and a copy of the approvals will be forwarded to your office on our recieval.

JUN 25 1984

UMC 817.47 Hydrologic Balance

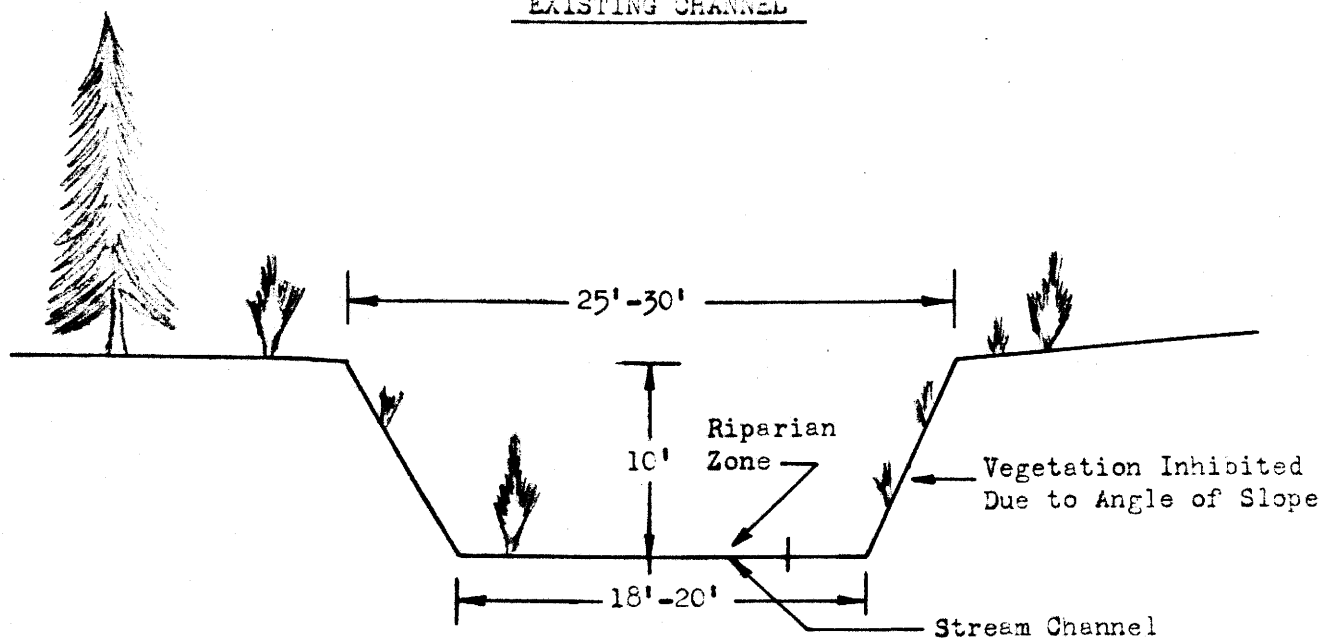
Co-Op is committed to use 12+ material in lieu of D-50 unless The Division of Oil, Gas, & Mining recommends an alternative.

UMC 817.103 Covered Coal & Acid & Toxic Forming Materials

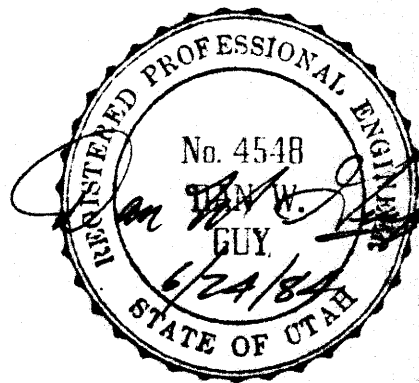
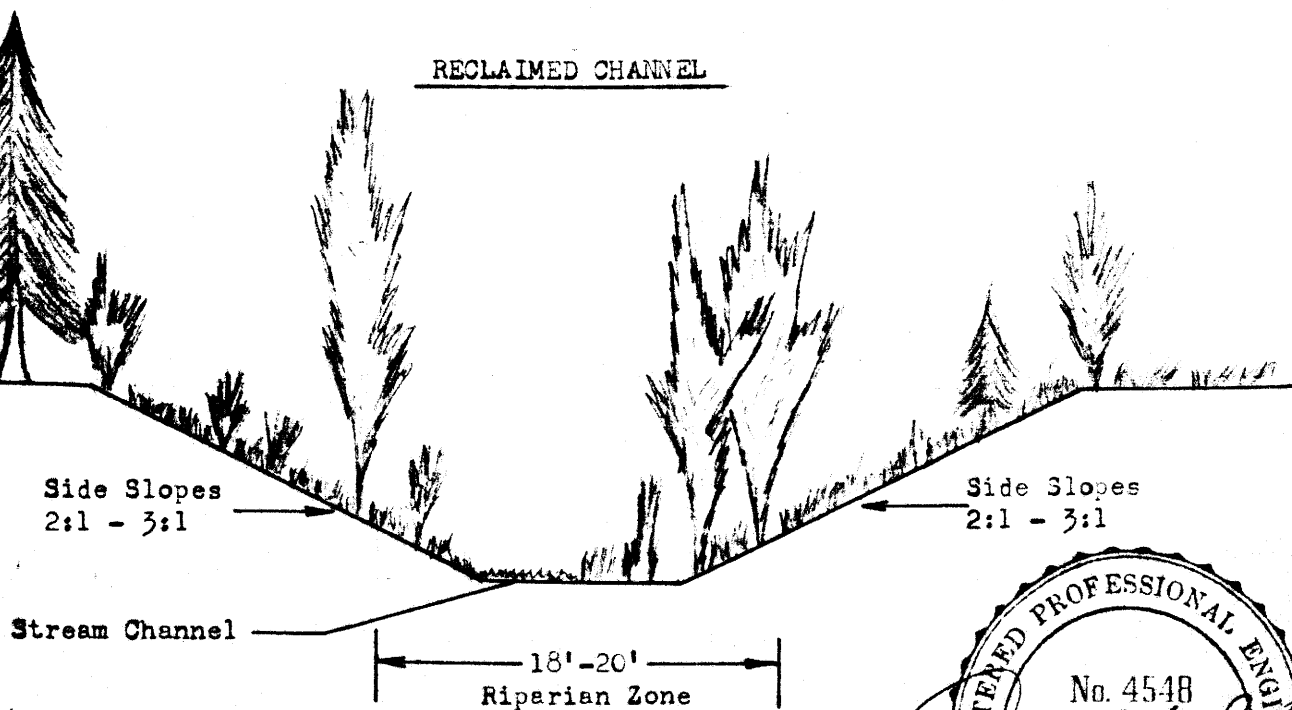
The sample was taken from that portion of Trail Canyon which Co-Op anticipates final reclamation in the near future. The specific site was at the toe of the slope where coal was historically stockpiled, approximately 800' above the Load-out facility.

The additional data is attached under appendix B

EXISTING CHANNEL



RECLAIMED CHANNEL



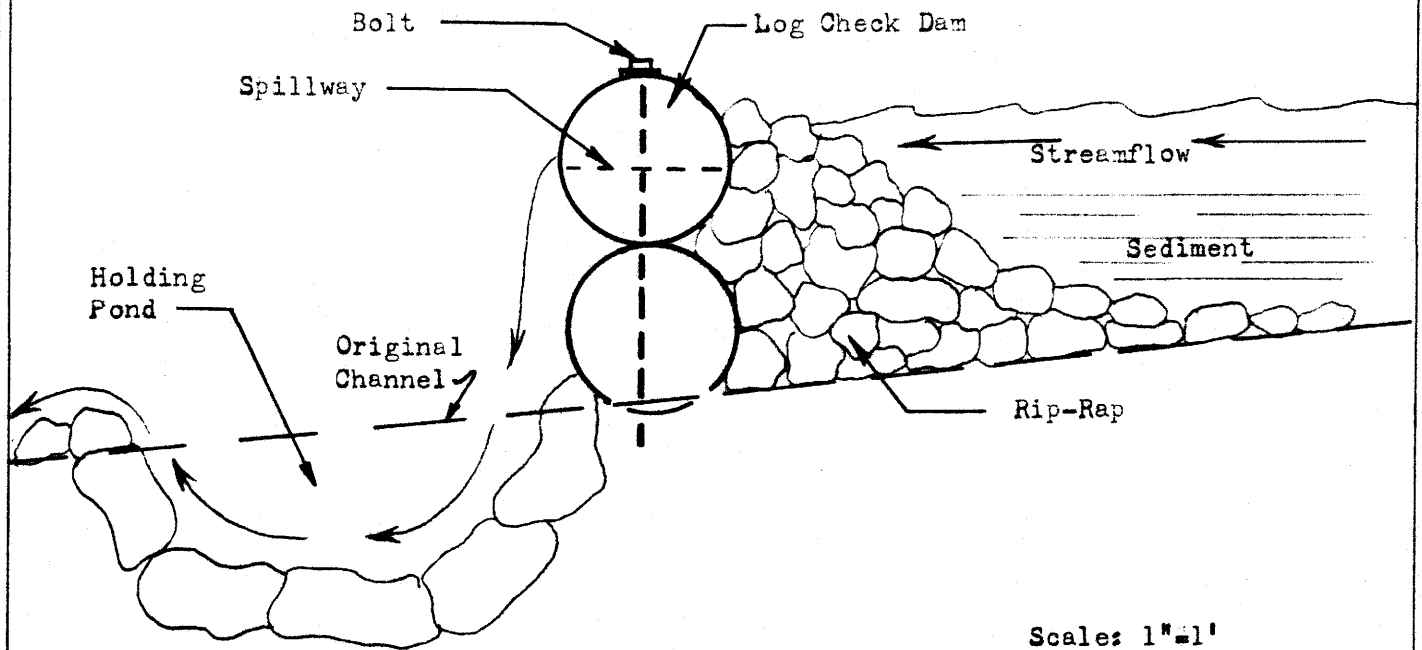
BEAR CANYON STREAM CHANNEL

SCALE 1"=10'

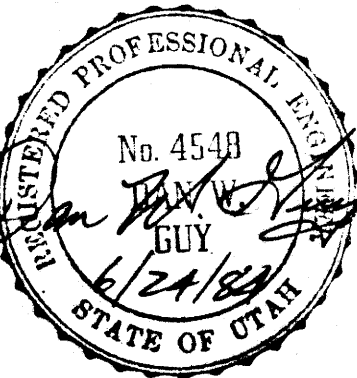
FIGURE
NO. 1

JUN 25 1984

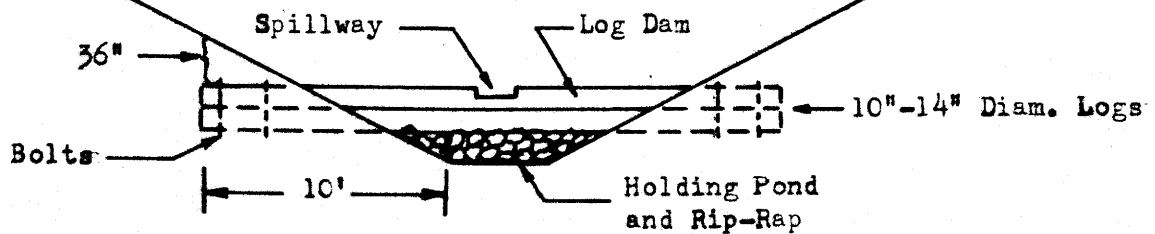
SIDE VIEW



Scale: 1"=1'



END VIEW (Looking Upstream)



Scale: 1"=10'

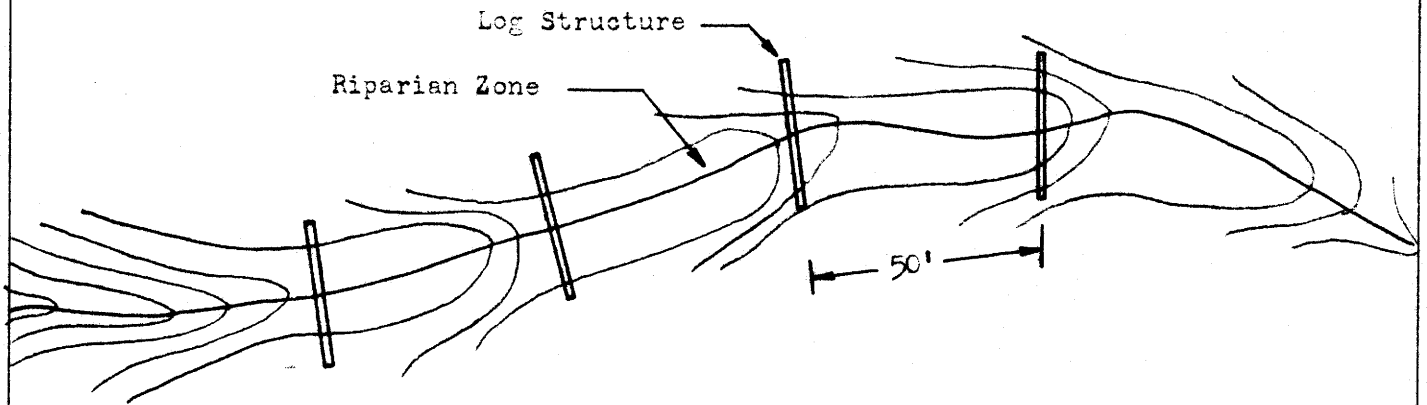
LOG CHECK DAM AND HOLDING POND

SCALE: AS SHOWN

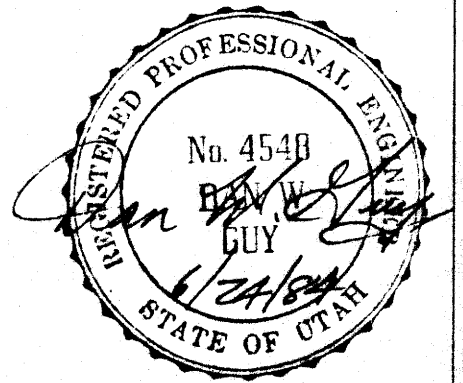
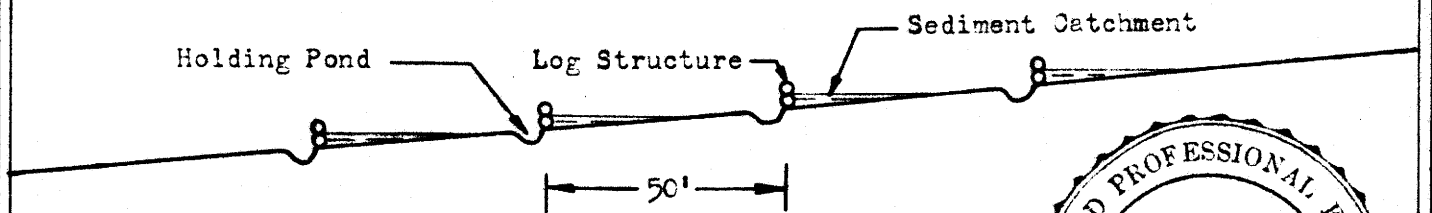
FIGURE
NO. 2

JUN 25 1984

PLAN VIEW



PROFILE



ENHANCED STREAM CHANNEL

SCALE: 1"=40'

FIGURE
NO. 2-A

JUN 25 1984



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

4241 State Office Building • Salt Lake City, UT 84114 • 801-533-5771

Scott M. Matheson, Governor
Temple A. Reynolds, Executive Director
Dr. G. A. (Jim) Shirazi, Division Director

October 12, 1983

Mr. Wendell Owen
Co-op Mining Company
P. O. Box 1245
Huntington, Utah 84528

RE: Scalehouse Modification
Final Approval
Bear Creek Canyon Mine
ACT/015/025
Folder Nos. 3, 4 and 7
Emery County, Utah

Dear Mr. Owen:

The Division has reviewed all material submitted by Co-op Mining Company for the proposed scalehouse permit modification and have, to the best of our ability, found that it meets all requirements set forth under Title 40-10 UCA 1953 (Regulation of Coal Mining and Reclamation Operations), and UMC 700 et seq. (Surface Effects of Underground Coal Mining Activities).

Approval of the proposed scalehouse modification for the Bear Creek Canyon Mine permit is hereby granted and utilization of this facility may lawfully commence.

If you have any questions, please feel free to call.

Sincerely,

JAMES W. SMITH, JR.
COORDINATOR OF MINED
LAND DEVELOPMENT

JWS/EH:btb

cc: Carl Kingston, Co-op Mining Company
R. Daniels, DOGM
E. Hooper, DOGM
J. Helfrich, DOGM
J. Whitehead, DOGM

UMC 785.19 Underground Coal Mining Activities on Areas or Adjacent
to Areas Including Alluvial Valley Floors in the Arid or
Semi-Arid Areas of Utah

The applicant has not completely addressed this requirement. A map of unconsolidated stream laid deposits or surface and groundwater into and through stream laid deposits has not been submitted.

See Chapter 3 Section 3.6.8

Letter requesting a variance under UMC/SMC 785.19(c)(3)(ii)

Submitted June 25, 1984

Co-Op Mining Company
P.O. Box 1245
Huntington, Utah 84528

June 25, 1984

Mary Boucek
Division of Oil, Gas and Mining
4241 State Office Building
Salt Lake City, Utah 84114

Ref: Alluvial Valley Floors

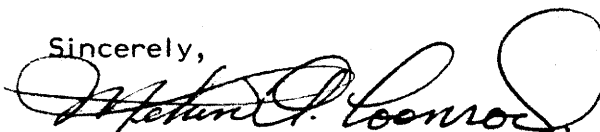
Dear Mary:

The pre-mining land use of the small area adjacent to Bear Creek in the Co-Op Permit Area is undeveloped range land and is not significant to farming.

This area is the only area where an alluvial valley floor could possibly exist and as stated by the SCS, no farm lands lie within the permit area and based on availability of water, steepness of the terrain, type of soil, and amount of rock, no farm land could feasibly be developed.

Based on the above which is documented in the Co-Op Bear Canyon Mine MRP Revised, Co-Op requests a waiver of UMC/SMC 785.19 paragraphs d and e and all of Section 822.

Sincerely,



Melvin A Coonrod
Permitting & Compliance
Co-Op Mining Company

MC/njc

JUN 25 1984

UMC 783.22 Land Use Information

The applicant has not completely addressed this requirement. Land productivity data obtained from the Soil Conservation Service (SCS) were not presented.

This information was provided and referenced in Chapter 4, Page 4-10 to Chapter 9 Appendix 9-B.

4.4.2.3 Land Capability and Productivity Before Any Mining

Present land capability and productivity will be only slightly reduced compared to the after mining capability. Mining activities have proceeded on the current lease areas of the Co-Op Mining Company historically with only minor effects on productive capabilities in terms of soils, topography, vegetation or hydrology. The soils indigenous to the area affected by the operations are described in Chapter 8. Vegetation is discussed in Chapter 9.

Surface water in the permit area is limited to surface run-off that flows most heavily during the spring and early summer months and then normally dry up. The quality and quantity of this water and of the ground water will be identified in Chapter 7.

4.4.2.4 Land Productivity Before Mining in Terms of Average Yield of Food, Fiber, Forage or Wood Products

Land productivity in terms of plant products

before any mining will not differ greatly from future productivity. Early settlers depended upon range land for grazing sheep, cattle and horses. Timbering was active, but on a much smaller scale than grazing. Early settlers needed fenceposts, corral poles, house logs and railroad ties.

The permit area affected by Surface operations and facilities of the underground Bear Canyon mine is capable of supporting limited grazing and recreational uses. Farming in the area is prohibited by the steep and rocky terrain.

Current and future land use will suit the physical features of the mine plan area, which is mostly steep and rocky. Such land is well suited for management as a multi-use area and coal mining fits appropriately into the overall land use scheme.

Land productivity data were obtained from the U.S. Soil Conservation Service.



United States
Department of
Agriculture

Soil
Conservation
Service

350 North 4th East
Price, Utah 84501

September 26, 1983

Mel Coonrod
Co-op Mine
P. O. Box 358
Elmo, Utah 84521

Dear Mel,

Trail Canyon Reference Area:

Pinyon-Juniper Grass Site

The production is 650 lbs herbage production for this year. The range site condition is good.

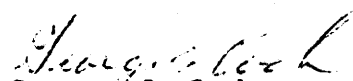
Trail Canyon Riparian Reference Area:

The production is 2,650-3,000 lbs/acre. The condition is fair.

Bear Canyon Comparative Area:

Pinyon-Juniper Grass Site

The production is 600 lbs/acre. The range site condition is fair.


George S. Cook
Range Conservationist

JUN 25 1984

UMC 784.17 Protection of Public Parks and Historic Places

The applicant has been given an extension to June 30, 1984 to complete the requirements of this section.

See Appendix 5-1

APPENDIX 5-1

PALEO-ARCHEOLOGICAL SURVEY

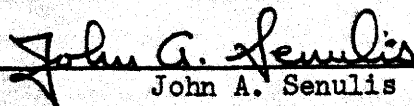


SENCO-PHENIX

ARCHEOLOGICAL SAMPLING SURVEY OF THE
BEAR CANYON MINE LEASE EXTENSION
PERFORMED FOR THE BEAR CANYON/CO-OP MINE
THROUGH ENVIRONMENTAL INDUSTRIAL SUPPLY

In accordance with State of Utah Guidelines
in Emery County, Utah
State of Utah Antiquities Permit No. 1106

SP-UT-42
SENCO-PHENIX
June 19, 1984


John A. Senulis
Principal Investigator

JUN 25 1984

Abstract

A 10% sample survey was performed on the Bear Permit area for CO-OP Mining by John A. Senulis of SENCO-PHENIX under regulation of the Office of Surface Mining, Utah Division of Oil, Gas and Minerals, and the Utah State Historic Preservation Officer.

No cultural resources were located and the probability of undetected remains is slight. Archeological clearance is recommended, particularly since there will be no or minimal surface impact from this project.

Project Area

The 750 acre Bear Permit Area is located in the $W\frac{1}{2}/W\frac{1}{2}$ of Section 24, the $E\frac{1}{2}$ and the $E\frac{1}{2}/W\frac{1}{2}$ of Section 23, the $S\frac{1}{2}$ of Section 14, and the $N\frac{1}{2}/NE\frac{1}{4}$ of Section 26, all Township 16 South, Range 7 East, Emery County Utah. There will be no, or minimal surface impact within the new permit area. Potential impacts would be from subsidence caused by abandoned mine shafts. The project is shown on the U.S.F.S. Manti-LaSal Map and U.S.G.S. 7.5' Quad: Hiawatha, UT (1978).

Specific Environment

The specific project area is extremely rugged, mountainous terrain with a topographical form of dissected uplands. Elevations range from 6800 to 8990 feet. Most of the terrain is steep with common grades of 15-20°. The one source of permanent water near the project area is Huntington Creek, ca. 3/4 mile southwest of the project area. Bear Creek, which flows much of the year, is roughly the eastern boundary of the permit area. Soils are generally colluvium forest soils on the slopes with clay loams on the ridges and in the valleys. The valley soils have a heavy gravel content of quartzite, lignite and scoria. Sandstone and shale are the predominant bedrock outcrops.

Predominant vegetation in the drainage areas is Ponderosa Pine, Douglas Fir, Aspen, Limber Pine, and Juniper with willow, rabbitbrush, sagebrush, muhly, squirreltail, milkvetch, lupine, woods rose, scarlet

gilia, arrow-leafed balsamroot, foothills arnica and other associated grasses, forbs and shrubs. On the steep, rocky, rugged hillsides, the pine and juniper trees and other vegetation become sparse.

Archeological Potential

A files search at the Utah State Historic Preservation office indicated that no archeological surveys have been performed in the project area. Sites in Huntington Canyon are generally flake scatters, isolates, and rock shelters, with historic sites consisting primarily of evidence of mining, i.e. mine shafts, hardware, etc. Generally the prehistoric and earlier historic sites are located along the valley floor. The probability of locating significant archeological resources in the steep mountainous areas was considered remote.

Survey Strategy and Methodology

The survey strategy was based upon the belief that the most likely area for sites would be within Bear Creek Canyon. Therefore, the entire canyon was surveyed with particular emphasis on the sides for potential rock shelters, and on the canyon floor for isolates. A second portion of rugged uplands was surveyed with wandering random transects to insure adequate coverage of the diverse zones.

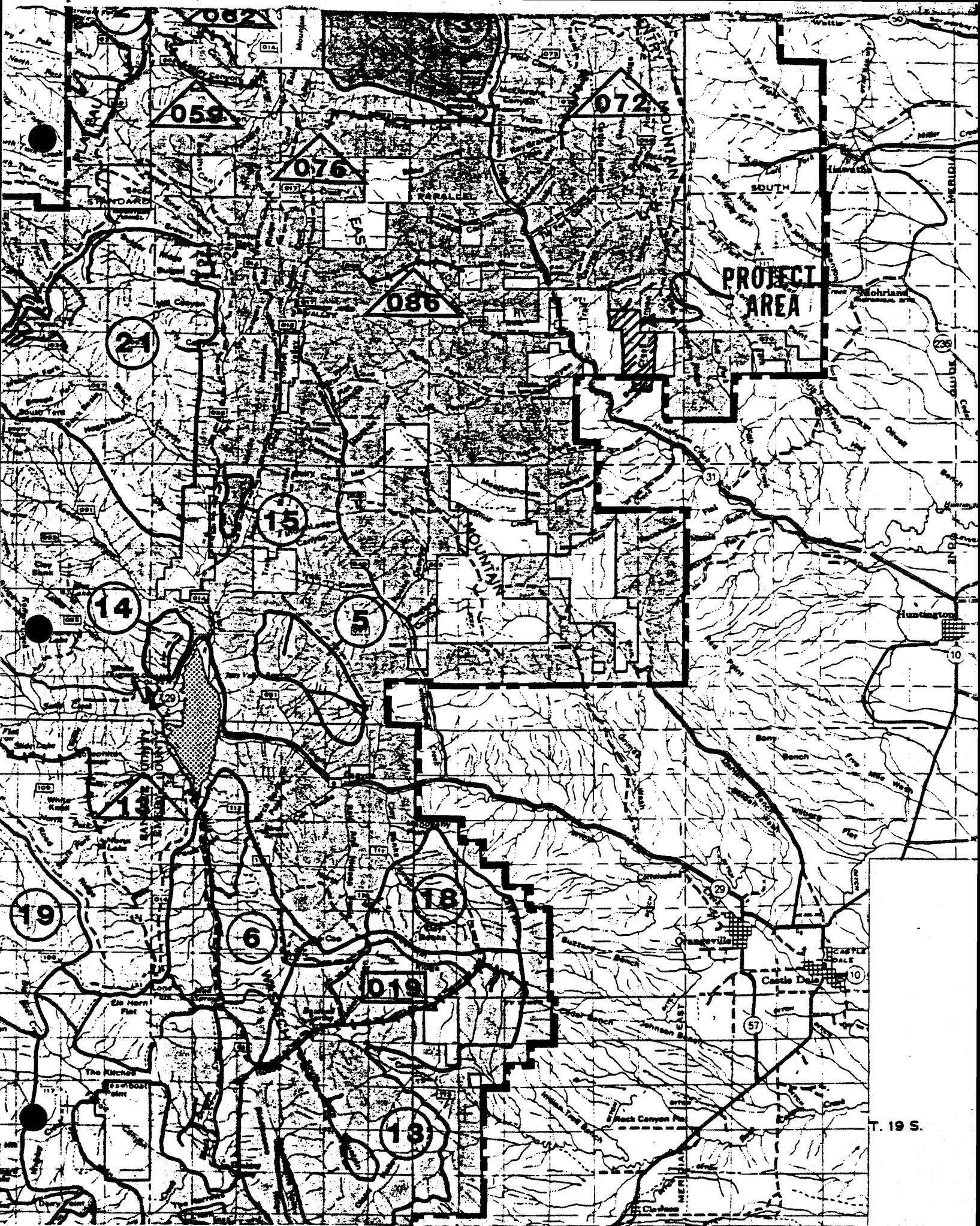
Survey Conditions

On June 18, 1984, John and Jeanne Senulis performed a walkover survey of the aforementioned areas. The sky was overcast for part of the survey with light mountain showers; however, the sky then cleared and the majority of the survey was conducted under sunny skies. The soils ranged from damp to dry, and the temperature was approximately 70° F. with calm winds except during the rain showers.

Findings and Recommendations

Outside of two modern campfires, no prehistoric or historic cultural resources were located in the steep, inhospitable terrain. No rock alcoves of sufficient size or configuration were discovered and the

entire valley floor showed evidence of occasional flash flooding.
Because of the lack of findings, and the project's non-surface disturbing
nature, archeological clearance is recommended.



T. 19 S.

JUN 25 1984

UMC 784.22 Diversions

- (1) The applicant has not completely addressed this requirement. The map delineating drainage areas cuts off certain areas, rendering it impossible to calculate the watershed area on subareas AR-1, AU-2, AU-3, AU-4, AU-5 and AU-6. (2) The applicant has not sufficiently identified or explained the formulas used where results were taken from computer sheets or the coefficients used in calculations. (3) No ditch cross-sections have been presented and velocities have not been shown. (4) A table identifying riprap size based on velocity has not been presented. Format for and frequency of reporting regarding the groundwater monitoring plan have not been addressed.

- (1) See revised Plate 7-5
- (2) Attached as insert A
- (3) See revised Plate 7-1
- (4) Attached as Insert A

INSERT A

HYDROLOGY

JUN 25 1984

-Summary of Culvert Sizes-

	<u>Flow(cfs)</u>	<u>Vel. (fps)</u>	<u>Rip Rap</u>	<u>Slope(%)</u>	<u>Diameter</u>	<u>Required Headwater**</u>
C-1R	10.2	9.5	12"	8.0	18"	27"
C-2R	12.1	9.5	12"	8.0	18"	36"
C-3R	16.4	9.5	12"	8.0	18"	27"
C-1U	8.8	12.3	24"+	15.0	30"	18"
C-2U	1.5	8.4	9"	15.0	15"	9"
C-3U	7.9++	5.7	6"	5.0	12"	36"*
C-4U	6.1++	5.1	6"	5.1	10"	36"*
C-5U	6.1++	5.0	N/R	4.8	10"	36"*
C-6U	.9	4.4	N/R	3.7	10"	12"
C-7U	10.3	9.7	12"	8.3	12"*** (18")	27"
C-8U	8.8	13.0	24"+	15.0	18"	24"
C-9U	1.5	8.0	9"	7.3	15"	9"
C-1D	1.5	10.9	16"+	20.0	15"	9"
C-2D	4.8	9.6	12"	12.0	18"	15"
C-3D	1.2	5.2	6"	4.2	12"	9"
60" CMP	231.2	13.8	24"	3.4	60"	102"

*When capacity of culvert is exceeded flow continues down ditch to next culvert.

**From invert elevation.

***Existing 12" CMP to be replaced with 18" CMP at 8.3% slope.

+ Energy dissipating device could be used instead of rip rap.

++ A two foot high check dam of rip-rap is used to develop the headwater necessary for maximum flow through the culvert, excess flow continues down the ditch.

N/R - Not required

-Summary of Ditch Sizes-

All ditches are triangular "V ditch" with 1:1 side slopes. (See Plate 7.1 for typical.)

	<u>Flow(cfs)</u>	<u>Vel. (fps)</u>	<u>Rip Rap Size**</u>	<u>Slope(%)</u>	<u>Depth Of Ditch</u>	<u>Depth Of Water</u>
D-1R	10.2	6.8	6"	6.0	2'-0"	1'-6"
D-2R	12.1	6.8	6"	6.0	2'-0"	1'-6"
D-3R	10.4	6.8	6"	6.0	2'-0"	1'-6"
D-1U	1.5	3.5	N/R	4.0	1'-3"	0'-9"
D-2U	1.5	3.9	N/R	5.0	1'-3"	0'9"
D-3U	6.1	5.5	4"	5.0	1'-9"	1'-3"
D-4U	11.8	6.6	6"	5.0	2'-0"	1'-6"
D-5U	.9	3.5	N/R	7.0	1'-0"	0'-6"
D-6U	.9	3.5	N/R	7.0	1'-0"	0'-6"
D-7U	10.3	6.6	6"	5.0	2'-0"	1'-6"
D-8U	2.3	4.4	N/R	6.25	1'-3"	0'-9"
D-9U	1.8	5.0	4"	8.3	1'-3"	0'-9"
D-10U	1.5	5.7	6"	18.0	1'-0"	0'-6"
D-11U	7.6	7.9	9"	14.0	1'-6"	1'-0"
D-1D	.8	4.0	N/R	9.0	1'-0"	0'-6"
D-2D	1.5	5.5	4"	10.0	1'-3"	0'-9"
D-3D	1.0	5.2	4"	15.0	1'-0"	0'-6"
D-4D	4.8	5.3	4"	6.25	1'-6"	1'-0"
D-5D	7.2	6.2	6"	6.4	1'-9"	0'-9"
D-6D	1.2	4.4	N/R	6.25	1'-3"	0'-9"

*6" freeboard added to required flow depth.

** see Plate 7.1 for location of rip rap.

N/R - not required

Design Parameters Determination Procedure

Listed below are the various parameters, along with and the procedures used to obtain them, which were supplied to the computer programs used in calculating the runoff hydrographs and routings and the ditch and culvert sizings.

The equations used in the Hydro Plus III - SCS hydrograph program are listed this section, 7.2.5.2 Diversion Structures. The parameters that were used are as follows:

Basin Area - the areas where calculated, using a planimeter, from those outlined on Plate 7-5.

Basin Curve Number - this SCS runoff curve number was estimated using "A Guide to Hydrologic Analysis Using SCS Methods", Section 5. This section is included in the reference section. The soil of the mine plan area is best described by soil group "C". For the undisturbed areas the land use description is "woods or forest land" and the hydrologic condition "fair". Using these description a curve number of "73" was obtained. For disturbed areas the curve number "82" was used.

24-Hour Precipitation - the precipitation amounts for the various storm frequencies came from E. Arlo Richardson's "Estimated Return Period for Short-Duration Precipitation in Utah", the Hiawatha area.

Average Basin Slope - the slopes of the various areas outlined on Plate 7-5 were derived by dividing the total change in elevation by the hydraulic length.

Hydraulic Length - this length, also from Plate 7-5, is the length from the area outlet or mouth to the divide or point of highest elevation.

Basin Lag - this value was computed by the computer program with the computer using a minimum of 15 minutes.

The hydrograph reservoir routing program used the appropriate runoff hydrograph routed through the appropriate sedimentation pond, "A" or "B". Pond capacity per elevation and spill way capacity were determined from the cross sections and criteria shown on Plates 7-2 and 7-3.

From the parameters listed above, the computer program was able to generate runoff hydrographs. From these hydrographs the peak or maximum flow was used in the sizing of the ditches. For sizing the ditches and culverts the parameters used are as follows:

Ditch Depth - various ditch depths were tried, in 3" increments, until a depth was found that would handle the the maximum flow.

Culvert Diameter - the diameters were obtained by field measurement, unless noted otherwise. If the flow was larger than could be handled by the culvert a check dam 2' high of rip-rap is used to develop headwater for maximum flow through the culvert, excess flow continues down the ditch.

Manning Coefficient - the coefficients came from Van Te Chow's "Open-Channel Hydraulics," For corrugated metal pipes and flumes, $n=.023$; for natural channels-straight, full stage, no pools with weeds and stones, $n=.035$.

Slope - for ditches the total change in elevation was divided by the total length, both values were obtained from Plate 7-1. For culverts the slope was obtained from field measurements.

H/C
6-21-84

To determine the headwater necessary for maximum flow through the various culverts the orifice computer program was run for the different size culverts being used in the mine plan area. The equations used in the program are listed on the individual printouts. The parameters supplied the programs are as follows:

D - diameter of culvert size being considered.

C - the coefficient of contraction for orifices was obtained from King and Brater's "Handbook of Hydraulics".

UMC 783.27 Prime Farmland

The applicant has not completely addressed this requirement. A letter from the SCS was not submitted as part of the MRP.

This letter was inadvertently omitted and is attached as Appendix 8-C.

JUN 25 1984

APPENDIX 8-C

PRIME FARM LAND

JUN 25 1984



United States
Department of
Agriculture

Soil
Conservation
Service

P. O. Box 11350
Salt Lake City, UT 84147

November 25, 1983

Mel Coonrod
P. O. Box 1245
Huntington, UT 84528

Dear Sir:

Keith Beardall, District Conservationist, Price, Utah, has determined that no prime farmland occurs in the Bear Canyon area; the areas were outlined in red on the map furnished with your request.

The areas in sections 14, 23, 24 and 26 are too steep to be considered for prime farmland. Sections 22 and 25 are above existing irrigation systems, more than 10 percent of the surface layer consists of rock fragments coarser than 3 inches and/or too steep to be considered for prime farmland.

We are retaining the boundary map pertaining to the area for future reference. If you have need of further information, please call on us.

Sincerely,

FERRIS P. ALLGOOD
State Soil Scientist

cc: Keith Beardall, DC, Price, UT



The Soil Conservation Service
is an agency of the
Department of Agriculture

JUN 25 1984

CO-OP MINING CO.

P.O. Box 15809
Salt Lake City, Utah 84115
Phone (801) 467-4003

NOV. 26, 1982

SCALEHOUSE MODIFICATION

Wendell Owen

Wendell Owen

Docket # 84-040
Cause # ACT/015/025

UMC783.14 Geology Description

We have not yet received the contour maps or the results of the test samples for the development of the upper storage pad, so we are requesting an extension of time for that portion only of the modified plan. We agree to not enter or use that portion of the permit area for any purpose, for mining operations or further construction until that portion of the modification has been completed.

UMC 783.25 Cross- sections, Maps and plans

(k) Please refer to Plate 111-8-b-1 and 111-9-b-2

Roads. Please refer to 784.24 of this package.

Surface structures will consist of; a shop, parts warehouse, bath house, mine offices, lamp house, truck scales, weighmans office, caretaker dwelling, mine run coal receiver bin, crushing and sizing structure, truck load-out bins, stockpile towers, and conveyors to carry coal to the storage and loadout sites. These structures will have cement footings and will be constructed with concrete blocks and/or steel. These will each be used for the purpose as designed (shop for repair and maintenance of equipment, bath house for showers and lockers, etc.). They will be maintained by painting and repairing as needed. Moving parts such as conveyors will be maintained by regular greasing and by replacing worn parts as needed.

Upon completion of mining operations, all structures will be removed, including the cement footings and the land will be returned to the approximate original configuration in preparation for final reclamation.

UMC 784.13 reclamation Plan

(b)(4) Prior to disturbance of areas used for mining operations, the topsoil has been removed, or in the case of possible additional disturbance will be removed and stockpiled for future use. An example of procedure for removal is the area of modification for the truck scales. Portions of this area were extremely rocky, while other portions had a topsoil depth of about 18 inches. The entire depth of topsoil was removed from the better areas, and enough topsoil saved to cover the entire area to a depth of at least 8 inches at the time of final reclamation. A berm has been made at the bottom of the stockpile. a sign has designated it as topsoil and it will be reseeded to protect it from wind and water erosion.

(b)(4)(vii) Applicant requests a meeting with the Division to discuss guidelines and help in deviseing a sampling program as suggested in the ACR. (See ACR 817.116).

(b)(1) In order that roads may be used for access to remove and reclaim all of the other facilities, the roads will be the last area to be reclaimed. When all other r eclamation is completed, the roads will be reclaimed except if any portion of the road or roads are needed for post mining land use

(b)(3) Final configuration will be as near as possible to the original contour of the area before disturbance. For maps and cross-sections see Plate III-8-b and III-8-b-1.

(b)(5) Contemporaneous reclamation for embankments, topsoil stockpiles, and etc. will include the following seed amounts and procedures;

Crested wheat grass	6# PLS per A.
Yellow sweet clover	6# PLS per A.

The best results in reseeding that we have attained in this area has been to scarify the ground, broadcast the seed and harrow the seed in lightly, as late as possible in the fall and still have the planting under the winter snow. The proper time for this is the first week in November. Any snow that falls before that time will melt off again before winter. This method has been very successful without the use of mulch, as the seed germinates immediately after the melting of the snow from the moisture of the snow melt. The use of yellow sweet clover in the seed mix adds to the success of the planting as it is very easy to get started under almost any condition, provides a cover to assist the other plants in starting, and adds to the nutrients of the soil. It is often used as a rotation crop by farmers as a soil builder. It is bi-ennial and helps control erosion while the perennials get a full stand and native plants from adjacent areas spread into the reseeded area. Irrigation will not be used due to nature of the terrain as results would be spotty at best. It is not needed if the planting is under the snow as described above. The on ly exception will be in the case of small areas near a building that has water pressure for sprinkling. Contemporaneous reclamation of these small areas will take place at any time of the year as soon as the earthwork is completed. For these plantings a straw mulch will be used and irrigation will be by sprinkling.

Soil samples have been collected from various topsoil sites and tested by agriculture consultants. The results of these analyses and recommended nutrient additives are included under this cover as 'Exhibit #1'.

UMC 784.13 (b)(5) cont.

2. Final abandonment

Upon completion of mining operation, the portal(s) shall be permanently sealed to prevent entry. Permanent seals will be designed to withstand any anticipated water pressure that may develop.

All machinery, equipment, and structures shall be removed from the permit area in not more than six months from the date of the completion of mining operations.

Dams, ponds, and diversions will be regraded to the approximate original contour of the land; except if that diversion is a barrow pit adjacent to, or a part of a road or pack trail that is to be left as a permanent road or trail.

Backfilling and grading

Disturbed areas will be backfilled and graded in not more than six months from the date of completion of the removal of surface structures, snow depth and weather permitting, or six months from the date the work can begin.

Backfilled material shall be placed to minimize adverse effects on ground water, minimize off-site effects, and to support the postmining use.

Highwalls will be removed or reduced except where the highwall is permanently stable and/or said removal will endanger the life of the machine operator attempting the removal.

Backfilled areas shall be restored to a contour that is compatible with the natural surroundings and is capable of supporting the post mining land use. Where practicable and appropriate, such contour shall be the approximate original contour.

Cut and fill terraces will be used where required in order to conserve soil moisture, ensure stability, and control erosion on final graded slopes. Terraces will meet the requirements of UMC 817.101 (4) (i) through (iv).

Redistribution of soil will include covering all debris, coal or other materials constituting a fire hazard, in a place and manner designed to prevent contamination of ground or surface water. Soil will be compacted or otherwise stabilized in preparation for reseeded.

Revegetation.

The soil that has been redistributed and compacted will be covered with the surface material from the stockpiles, or other soil that has been tested and found to be suitable and able to support vegetative cover. Soil will be prepared for seeding by harrowing or final grading.

A description of the vegetation prior to surface disturbance is as shown on the following inventory taken by the Soil Conservation Service. Most of the disturbed area is along the boundary line between Pit 1 and Pit 2 of the SCCS survey and would be a blending of the two rather than a distinct line. The seed mixture as shown in Chapter III Exhibit 'h' in our permit application (also here enclosed) was chosen because it was recommended to us by the Utah State Experimental Station as being readily adaptable to the local climatic and soil conditions, having good potential for rapid development of cover, and contributing to possible post mining land use such as grazing or wildlife use. The plants from these seeds are not poisonous or noxious.

We have also enclosed a copy of appendix B table 1 of Utah Division of Wildlife resources 'Fish and wildlife resource information' of recommended seed mixtures that will benefit wildlife. Many of the plant species are the same on both seed mixture lists, but if in the opinion of the OGM Division it would be better to modify the plan to use the seed mixture in table 1 in place of the one in Exhibit 'h' we would be glad to do so.

CHAPTER III _ Exhibit 'h'

SEED MIXTURE

Crested wheat grass	6# per acre
Luna pubescent wheat grass	2# per acre
Russian wild rye	6# per acre
Yellow sweet clover	6# per acre
Ladac alfalfa	2# per acre
Small burnet	2# per acre
Sage brush	1/4# per acre
Rabbit brush	1/4# per acre
Four wing salt brush	1/4# per acre

Amounts are given in PLS.

DESCRIPTION OF PRESENT VEGETATION

Upland Stony Loam (Pinyon-Juniper) Ecological Site

Two inventories of the Upland stony loam (P-J) ecological sites in the Bear Canyon area recorded the following vegetation as a percentage of air dry weight:

- 1) Pit 1, SW $\frac{1}{4}$, Sec. 24, T16S, R7E. This site relates to the D1G soil.
- 2) Pit 2, NW $\frac{1}{4}$, Sec. 25, T16S, R7E. This site relates to the D2E soil.

	<u>Percent</u>	
<u>Grass and Grass-like Plants</u>	<u>Pit 1</u>	<u>Pit 2</u>
Indian ricegrass	5	5
Salina wildrye	25	10
Squirreltail		10
Sedge		2
Needleandthread		2
Muttongrass	T	1
<u>Forbs</u>		
Buckwheat	1	
Mustard	1	2
Aster	1	2
Other	2	2
Cryptantha		2
Stickseed		2
<u>Trees and Shrubs</u>		
Utah rabbitbrush		5
White fir	5	
Douglas fir	5	5
Pinyon pine	30	25
Juniper	10	10
Rocky Mountain juniper	10	5
Curlleaf mountainmahogany	5	
Big sagebrush		5
Elderberry		5
Total annual Production (estimated in pounds/acre)	900	1500
Ecological rating	Good	Good

Table 1. Recommended seed mixtures that will benefit wildlife through enhancement of moderately disturbed shrublands habitats of the montane ecological association. Also included are acceptable alternatives if seed for a plant species is not available. Alternatives marked with an asterisk (*) are for use in special treatments such as erosion control or roadbank stabilization. If disturbance was severe and total reclamation is needed, increase amount of seed by a factor of 1 to 3 times. Information assembled from Plummer, A.P., D.R. Christensen and S.B. Monsen. 1968. Restoring big game range in Utah. Utah Division of Fish and Game (now Utah Division of Wildlife Resources) Publication No. 68-3. 183 pp. Also from personal contacts with A. Perry Plummer.

Species	North exposures and shady areas		Sunny exposures (south, west, east)		Mixture for tall mountain brush type, shaded sites.	
	Broadcast	Drilled	Broadcast	Drilled	Species	Seeding per acre
	-Pounds per acre -					<u>Pounds</u>
Grasses:					Grasses:	
Fairway crested wheatgrass	2	1	2	1	Smooth brome (southern strain)	5
Smooth brome (southern strains)	4	2	2	1	Fairway crested wheatgrass	1
Intermediate wheatgrass	4	2	2	1	Intermediate wheatgrass	3
Pubescent wheatgrass	0	0	2	1	Orchardgrass (Utah grown)	2
Bluestem wheatgrass	0	0	1	1/2	Tall oatgrass	1
Orchardgrass	1	1/2	1	1/2	Mountain brome	1
Russian wildrye	0	0	1	1/2		
Tall oatgrass	1	1/2	0	0		
Forbs:					Forbs:	
Alfalfa (Nomad, Rambler, Travois, Ladak-equal parts)	2	1	2	1	Alfalfa (creeping strains or Ladak)	1
Chickpea milkvetch	0	0	1	1/2	Pacific aster	1/4
Utah sweetvetch	0	0	1	1/2	Oneflower helianthella	1/2
Yellow sweetclover	0	0	1	1/2	Showy goldeneye	1/4
Arrowleaf balsamroot	1	1/2	1	1/2		
Pacific aster	1	1/2	1	1/2	Totals	15

Table 1. Continued

Species	North exposures and shady areas		Sunny exposures (south, west, east)	
	Broadcast	Drilled	Broadcast	Drilled
-Pounds per acre-				
Shrubs:				
Rubber rabbitbrush	1/2	1/4	1/2	1/4
Douglas rabbitbrush	1/2	1/4	1/2	1/4
Big sagebrush	0	0	1/2	1/4
Fourwing saltbush	0	0	1	1/2
Totals	17	8 1/2	20 1/2	10 1/4
Shrubs for pits, major disturbance areas, cleat marks, and drilled areas:				
Antelope bitterbrush	1	1/2	2	1
Golden currant	1/2	1/4	1/2	1/4
Birchleaf mountain mahogany	1	1/2	1/2	1/4
Curlleaf mountain mahogany	0	0	1/2	1/4
Cliffrose	0	0	1/2	1/4
Green ephedra	1/2	1/4	1/2	1/4
Fourwing saltbush	0	0	1	1/2
Woods rose	1	1/2	1/2	1/4
Saskatoon serviceberry	0	0	1	1/2
Totals	4	2	7	3 1/2

DEC 783.16, .22, .23

1-Plate III-9-b (please note that additions have been made to this map that includes the information asked for that was not on the original map turned in for the modification).

2- Plate III-7-b

Size of catch basin

10 year 24 hour rainfall experience	2.4 in.	.2 ft.
75% runoff		.15 ft.
Acres draining into catch basin		1.2
sediment storage required		.18 A. ft.
Sediment storage required		.12 A. ft.
basin area	2,000 sq. ft.	25 ft. x 80 ft.
Height sed. storage	2.6 ft.	
Height water storage	4 ft.	
Free board	1.4 ft.	

Culvert

Length	100 ft.
Diameter	60 in.

30 784.23 Operation, plant maps and plans

Cross-section of topsoil stockpile. See Plate 8-b-1

Upper storage pan, request extension (refer to heading 783.14 of this package).

UMC 784.24 Transportation Facilities

Topographic map of roads and parking. Plate III-8-b

- (a) Cross sections: Haul road Plate III-9-b (modification)
- Supply road Plate III-8-b-1 Section B-B
- Road cut and fill embankment III-13-b
- Culvert III-12-b
- Drainage ditch III-8-b-1 Section C-C

Haul roads will be a width of 30 feet road surface, not including the width of drainage and/or diversion ditches at the side of the road.

Supply and equipment roads will be 20 to 25 feet wide, not including the width of drainage and/or diversion ditches at the side.

The access road to the portal was constructed with a dozer by the cut and fill method. The average grade is 8% with sections of not more than 200 feet of up to 12%. Culverts are placed at the points where the natural drainages in the mountain intersect the road to minimize the amount of water that will flow down the diversion ditch that was constructed along the side of the road. When completed, the road will be surfaced with a crushed road base material and treated with ammonium chloride for dust control. This road will be used by the people going to and from work and for vehicles hauling supplies to the mine. The access road to the screenage plant was an old existing road that has been graded and restored, and will be finished in the manner described above. It will be used by the people going to and from work at the screenage plant and for repair and maintenance vehicles. These roads will be maintained by grading and reapplication of water and/or chemicals if needed. The main haulage road was an old existing road graded and restored and when completed, will be surfaced with a crushed road base material and treated with ammonium chloride for dust control. The average grade is 4%, which remains consistent throughout the entire length of the road without steeper stretches. Culverts are placed at the points where the natural drainages intersect the road, but not exceeding 800 feet spacing. This road will be used for access to the minesite and to transport coal away from the mine.

For reclamation please refer to 784.13.

There is no public road within 100 feet of the permit area, except where the mine haul road joins that right of way.

Conveyor systems consist of covered belts which carry the coal from the screenage plant to the stockpile area. Maintenance includes regular servicing and replacing of worn parts when necessary. This will be included in the maintenance program we have for the entire operation. For dust control measures see 784.25.

784.25 Fugitive dust control plan

A copy is included, of a dust control plan that has already been submitted and approved by the Bureau of Air Quality, in the Bear Canyon permit application. Please see Chapter XI, Exhibit XI-b

CO-OP MINING COMPANY _____ DUST CONTROL (BEAR CANYON)

May 5, 1980

	UNCONTROLLED	FACTOR	CONTROLLED
HAUL ROADS	13.17 T. PER YEAR	85%	3.476 T. PER YEAR
ACCESS ROADS	3.59 "	85%	.54 "
COAL STORAGE	5.15 "	50%	2.625 "
CONVEYORS	10 "	99%	.2 "
CRUSHER	2 "	99%	.02 "
SCREENS	10 "	99%	.1 "
PRODUCT REMOVAL	5 "	50%	2.5 "
TOTAL	69.61 "		9.461 "

May 5, 1960

STORAGE PILE (COAL)

AVERAGE SIZE OF PILE 5,000 T. (10,000 T. CAP. — NORMALLY LESS THAN 1,000 T.)

THERMAL PILE 200,000 T. PER YEAR

L = 9.125

S = 10

d = 175 (HIAWATHA WEATHER STATION — 151 DAYS SNOW COVER --39 ADDITIONAL DAYS .01 IN. OR MORE OF RAINFALL)

$$d = .05 \cdot \frac{20}{1.5} \cdot \frac{175}{235} \cdot \frac{15}{15} \cdot \frac{9.125}{90} = .0525 \cdot 200,000 \text{ T.} = 5.25 \text{ T. PER YEAR}$$

CONTROL — COAL IS SPRAYED WITH WATER AS IT IS BEING MINED IN ORDER TO MEET UNDERGROUND DUST CONTROL REQUIREMENTS. ADDITIONAL SPRAY EQUIPMENT WILL BE INSTALLED AT THE STORAGE SITE TO USE IF NEEDED.

CRUSHING (PRIMARY ONLY) 200,000 T. • .02 = 4,000# = 2 T. PER YEAR

CONTROL — ENCLOSED AND VENT TO BAG HOUSE

SCREENING 200,000 T. • .1 = 20,000# = 10 T. PER YEAR

CONTROL — BAG HOUSE

CONVEYORS AND TRANSFER POINTS 200,000 T. • .2 = 40,000# = 20 T. PER YEAR

CONTROL — ENCLOSED AND VENT TO BAG HOUSE

ROADS (HAUL) — s = 15
S = 20
W = 190

$$E = 5 \cdot .47945 = 2.39725 @ 19333.33 \text{ MILES PER YEAR} = 23.17 \text{ T. PER YEAR}$$

CONTROL — CHEMICAL STABILIZATION

ROADS (ACCESS) s = 15
S = 10
W = 190

$$E = 2.5 \cdot .479452 = 1.1986 @ 6000 \text{ MILES PER YEAR} = 3.59 \text{ T. PER YEAR}$$

CONTROL — CHEMICAL STABILIZATION

PRODUCT REMOVAL 200,000 T. PER YEAR • .05 = 5 T. PER YEAR

CONTROL — WATER SPRAY

UMC 817.22 Topsoil removal

Please refer to 784.13 (b)(4) of this package.

Area of scale area modification 1.2 acres.

Area of upper pad modification, please refer to 783.14 of this package.

Results of analysis of soil; please refer to Exhibit '1'.

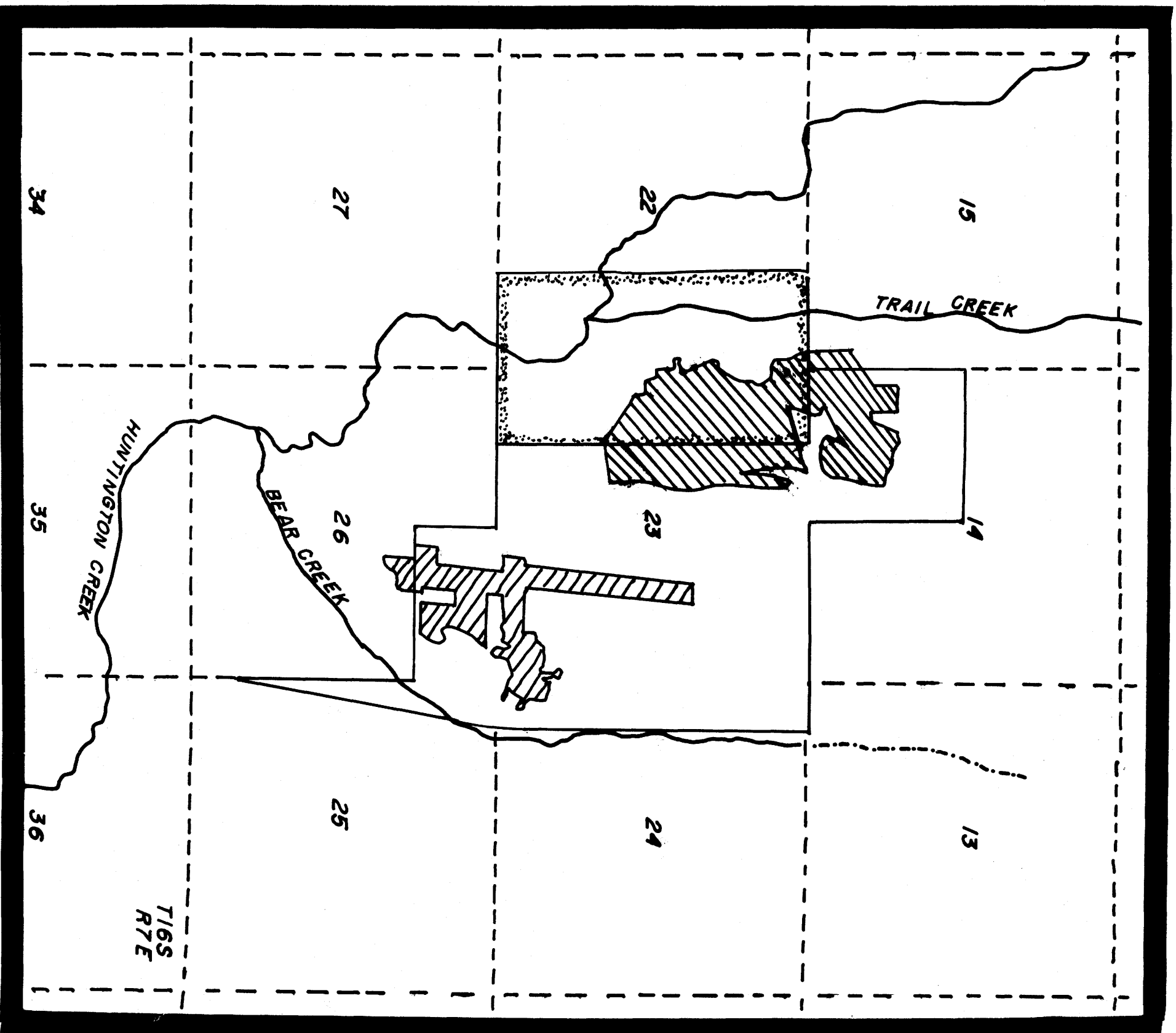
UMC 817.23

Please refer to 784.13 (b)(4) and (b)(5) of this package.

UMC 817.24

Upon final reclamation, topsoil will be applied to a depth of 3 to 4 in.

Umc 817.25 Soil nutrients will be added to the topsoil as needed as indicated by the above analysis.



KEY

— BEAR CANYON MINE PERMIT AREA

- - - TRAIL CANYON MINE PERMIT AREA

▨ BEAR CANYON MINE WORKINGS

▨ TRAIL CANYON MINE WORKINGS

- - - SECTION BOUNDARIES

~ ~ ~ STREAMS



SCALE 1:24,000

TRAIL CANYON AND BEAR CANYON MINES:
PERMIT AREAS / MINE WORKINGS

BEFORE THE BOARD OF OIL, GAS AND MINING
DEPARTMENT OF NATURAL RESOURCES
IN AND FOR THE STATE OF UTAH

IN THE MATTER OF THE APPLICATION	*	NOTICE OF HEARING
OF CO-OP MINING COMPANY FOR REVIEW	*	
AND HEARING REGARDING ISSUED MINING	*	CAUSE NO. ACT/015/025
VIOLATIONS	*	

THE STATE OF UTAH TO CO-OP MINING COMPANY, AND THOSE PERSONS
INTERESTED IN MINING OPERATIONS AT CO-OP MINING COMPANY'S BEAR CREEK OPERATION.

Notice is hereby given that the Board of Oil, Gas and Mining, State of Utah, will conduct a hearing on Thursday, October 27, 1983, at 10:00 AM, in the Auditorium of the Department of Natural Resources, 1636 West North Temple, Salt Lake City, Utah, to consider the Application of Co-Op Mining Company for reivev and hearing regarding issued mining violations.

Notice is further given that the purpose of said hearing will be to determine whether or not the Bord should enter and order vacating violations C83-1-2 and C83-1-1 issued to Co-Op Mining Company.

Any interested firms, persons or corporations shall be entitled to appear at the time and place aforesaid to be heard by the Board. The Application may be inspected in the office of the undersigned, 4241 State Office Building, Salt Lake City, Utah.

If there are any protests in this matter, please make such known to the Assistant at least three (3) working days before the hearing.

DATED this 12th day of October, 1983.

STATE OF UTAH
BOARD OF OIL, GAS AND MINING

Marjorie L. Larson
MARJORIE L. LARSON
Administrative Assistant

BEFORE THE BOARD OF OIL, GAS AND MINING
DEPARTMENT OF NATURAL RESOURCES
IN AND FOR THE STATE OF UTAH

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STATE OF UTAH
BOARD OF OIL, GAS AND MINING


MARJORIE L. LARSON
Administrative Assistant